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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/465,016	12/16/1999	GIACOMO STEFANO ROBA, MONZA	05788-0111	8368

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FINNEGAN, HENDERSON, FARABOW, GARRETT &  
DUNNER LLP  
1300 I STREET, NW  
WASHINGTON, DC 20005

EXAMINER

HOFFMANN, JOHN M

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 05/09/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/465,016

Examiner

John Hoffmann

Applicant(s)

ROBA ET AL.

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7-D-12

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuisl 4650693.

Kuisl discloses the invention as claimed, except for the temperature at the outlet.

Looking to the sole figure: 2 represents the first gaseous or vapor phase that is provided to the inlet zone of chamber 60 (or alternatively, 41). See col. 1, line 53-55 which indicates that it is a surrounding structure - i.e. it is a chamber. Even though Kuisl indicates that 1 is a reaction chamber, any other chamber in which the reaction occurs can be considered a reaction chamber. 3 represents the supplying of water as the second gaseous phase to the inlet zone. The reacting occurs as per col. 2, lines 57-62 and line 42. The directing and depositing can be easily seen from the drawing. As to the temperature gradient: Col. 4, lines 46-48 indicate that the gases are only at 800-1000 C. And lines 52-59 clearly state that 41 is heated to 1200C, thus furnace 60 is at least 1200. Further, it discloses that the stream 20 is heat higher than 1200. But it is not stated that these temperatures are at all locations of 41, 60 and 20. It would

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have been obvious to heat at least the rightmost ends (if not the entirety) of 41 and 60 to be at the disclosed temperature, because one would want the whole structure to be at the temperatures disclosed, to make sure the invention works. If a reference discloses heating something to a particular temperature, one usually expects that the entire feature ought to be heated to that temperature - not just one portion of the body.

It is noted that an "outlet" is generally not structure (it is nothingness)-unless there is structure is used to define their boundaries. As to an outlet having a temperature, such could be the temperature of the gas flowing through the opening, or the structure which defines the boundaries of the opening. In the present case a zone (i.e. the left-most quarter of chamber 60, or the left most half of chamber 41 has at least one section that is in the 800-1000C range as discussed above. Thus there is a temperature difference from at least 1000 to 1200 C.

Also see the RESPONSE TO ARGUMENTS section below, for how the claim limitations are met.

Claim 2 is clearly met.

Claim 3, the disclosed temperature ranges clearly represents a difference in temperature of 300 C. One of ordinary skill at once envisions such a difference.

Claim 4 : see col. 4, lines 44-50.

Claim 5: The predetermined temperatures of the chamber (be it 41 or 60) are such that the reaction is not complete prior to the mixing of the gases. Although another reasonable interpretation of the claim is that it requires the reaction to be incomplete if

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the gases were fully mixed and if the gases were heated to that temperature. But such would not be the broadest reasonable interpretation of the claim.

Claim 6: Since the gases are heated to 800-1000, they have to be cooler than that to begin with. It would have been obvious to have the gases at room temperature because that is the cheapest way to store/supply the gases. It is deemed that any local interior portion of the chamber is part of the chamber, thus since the gases are at room temperature, at least that local portion of the chamber is at room temperature - or maybe slightly elevated. Such a temperature would be *predetermined* by its original temperature, any heat added or withdrawn therefrom, any adiabatic cooling it has undergone, etc.

Claim 7: It would have been obvious that the gas would be heated "from about 600 C to about 750 C as it is heated from room temperature to a temperature within the 800-1000 C range.

Claim 8, refers to "the" stream that goes "through" the chamber and "the inlet". But there is no prior mention of the stream that goes through the chamber or the inlet. It is deemed that the broadest reasonable interpretation of the claim is: "if there is a stream being direct through the reaction chamber, then it increases from 700 C at an inlet to about 1200....." Since Kuisl does not have an aerosol stream that goes through the chamber, it need not have the temperature change. The Office cannot interpret the claim as having this extra stream - unless the claim specifically requires it.

Claim 9: First it is noted that there is no explicit antecedent basis for "the target preform". This is interpreted as "preform". Col. 2, lines 47-52 if Kuisl discloses heating

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the preform to draw it. It would have been obvious to maintain the end of the preform at a temperature above 700C so that one can draw a fiber - because a temperature higher than 700 is inherently required to soften the Kuisl glass to be able to draw it. IT would have been an obvious matter of routine experimentation to determine the optimal temperature and then keep it at that temperature so that other parameters don't have to vary with varying temperature.

Claims 10-11, Col. 4, lines 23-43 discuss thermophoresis. It would have been obvious to have the target and the preform thereon at a temperature that supports the motion of the gases/soot. Whereas the particles avoid the higher temperature gas, one would have the preform/target at a lower temperature which would attract the particles. Such is a well known technique. It would have been obvious to one of ordinary skill to perform routine experimentation to determine the optimal temperature.

Claim 12, see col. 1, lines 45-47. If the cross section is rectangular, the walls converge at a 90 degree angle towards each other.

Claim 13: the reaction occurs in the substantial absence of the unreactive carrier gas 20.

Claim 14, it would have been obvious to store the starting materials in liquid form at room temperature, because the Kuisl materials a readily in the liquid phase at room temperature and because it is much easier to store liquids than gases. It would have been further obvious to heat them when the vapor form is desired, because heating will cause more evaporation (i.e. conversion from liquid to gas). It would have been further

obvious to have them at a pressure near 1 atmosphere, because this is the cheapest pressure to store liquids at.

### ***Response to Arguments***

Applicant's arguments filed 23 April 2002 have been fully considered but they are not persuasive.

Applicant disagrees with the Office's interpretation of "reaction chamber" (i.e. a chamber in which a reaction can (or does) occur). The relevance of the two "reasons" (for why the definition is disagreed with) is not understood. Since the claims do not require a reaction to occur in all section of the reaction chamber, the Office does not have to demonstrate reactions in any left-most portion of 60 or 41. The fact that Kuisl defines chamber 1 as being a "reaction chamber" does not preclude another chamber from also being a reaction chamber. The present claims are comprising in nature and thus are open to having additional reaction chambers.

It is further argued that Kuisl only discloses that aerosol stream 20 may be further heated by heating elements 66 in pipe 41. (col. 4, lines 56-59). This is incorrect - stream 20 is an "aerosol-free stream" (col. 4, line 56). Its purpose is clearly to keep the aerosol from expanding radially outward.

It is further argued that Kuisl fails to disclose heating higher than 1200 C. Col. 4, lines 53 reads, heating "21, 31, 41 and/or...gas stream 20...to 1200C. If desired, the aerosol-free stream 20 may be further heated...to enhance the thermophoresis effect" A

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fair reading of this passage is that stream 20 should be heated to a temperature higher than 1200 so as to enhance the thermophoresis effect. Thus Applicant's final conclusion that the temperature at the outlet can only be the same or lower is not persuasive, and the Office's conclusion that it would have been obvious to have the outlet have a higher temperature, is valid. Although it might as well be that a portion of the gas that exits the outlet is at or less than 1200 C, the claims are comprising in nature and is open to having some portions of the outlet being below 1200 - as long as there is one gradient as claimed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

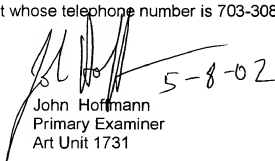
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is 703-308-0469. The examiner can normally be reached on Monday, Tuesday, Wednesday, Thursday, Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stan Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7115 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



John Hoffmann  
Primary Examiner  
Art Unit 1731

5-8-02

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May 8, 2002